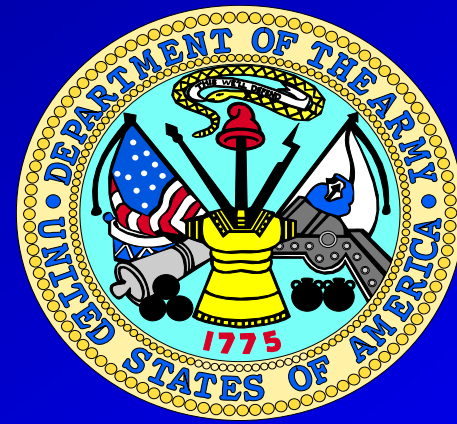
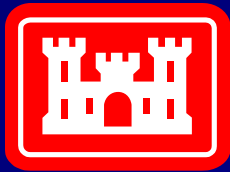


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# ***CERCLA Five-Year Review Program***

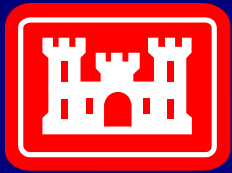


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# Five Year Reviews

- **Purpose:** To ensure that the response action remains protective of human health and the environment.



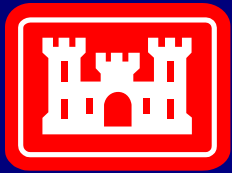


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# Corps Involvement

- **FY-97: Assisted EPA on 5-Yr Guidance**
- **FY-98: 2 Reviews**
- **FY-99: 8 Reviews**
- **FY-00: 16 Reviews**
- **FY-01: 14 Reviews**



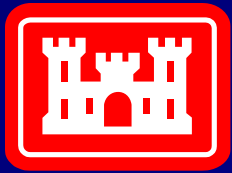


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# **Roles and Responsibilities**



- **EPA: Assigns work to Corps**
- **HTRW-CX: Coordination, QA, Training**
- **Divisions: Assigns Reviews to Districts**
- **Typical Cost: \$20 to \$30k per review**

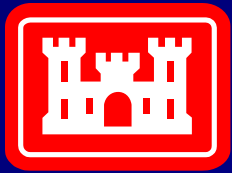


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# **Five-Year Reports**

- **Past Reports**

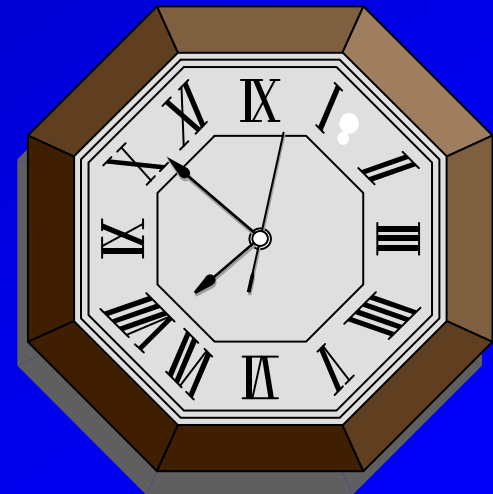
- Level of detail presented is not consistent
- Some reports lack adequate detail to support conclusions
- Given lower priority

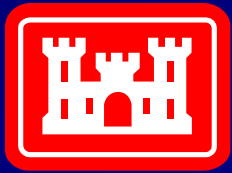


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# **EPA Guidance**

- **Guidance:**
  - **Comprehensive Five-Year Review Guidance, EPA 540-R-01-007, June 2001**



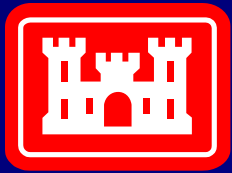


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# Statutory or Policy Review?

- **Statutory**: If contaminants will remain at the site and the ROD was signed on or after Oct 17, 1986. (SARA) – Examples: Landfills, Institutional Controls
- **Policy**: Post SARA action that will be “clean,” but take longer than 5 years to complete. Examples: GW Pump & Treat, Nat. Attenuation.





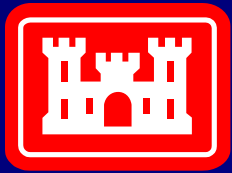
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# **Review Procedures**

- **Review remedial design**
- **Perform site inspection**
- **Interviews**
- **Analyze existing data**
- **Prepare summary report**



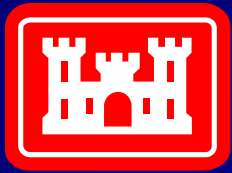




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# **Site History and Background**

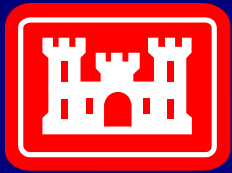
- **General in nature**
- **Where do we get the information?**
  - **ROD**
  - **RI/FS**
  - **Annual O&M reports**



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# **Interviews and Community Involvement**

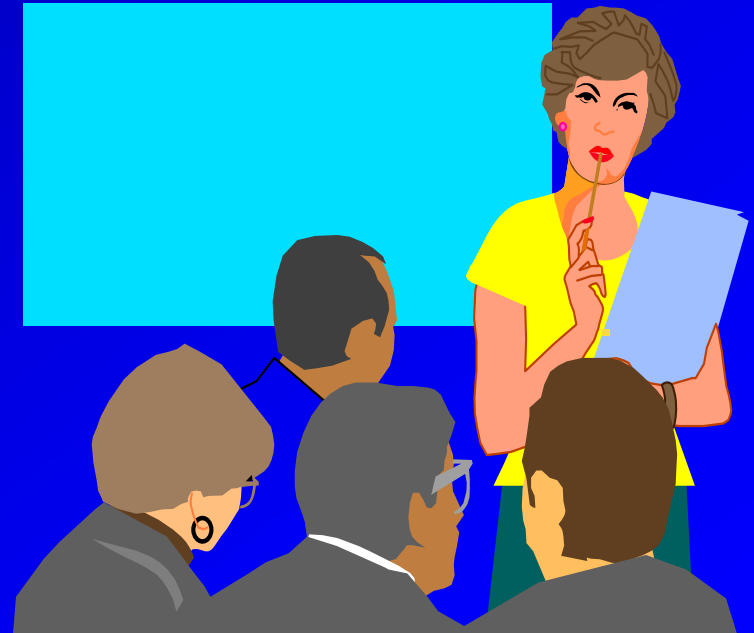
- **Interviews: Contact RPM regarding potential contacts (Site Manager, O&M staff, Community)**
- **Keep Community Informed:**
  - **Provide Notification**
  - **Final Report to be part of Local Repository**

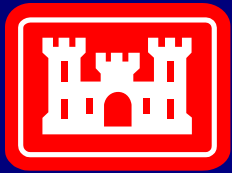


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# **Review Team**

- **Remedial Project Manager (RPM)**
- **Community Involvement Coordinator**
- **State Regulators**
- **Technical Experts**
  - Engineers, Geologists
  - Chemist
  - Risk Assessor
  - ARARs Specialists



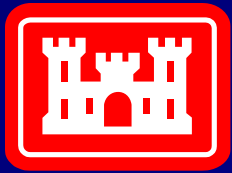


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# **Site Inspection Procedures**

- **Site Visit  
Coordination**
- **General Items to  
Inspect:**
  - Overall condition
  - Access and  
institutional controls
  - Specific remedy  
features
  - Document all findings  
with photos/diagrams

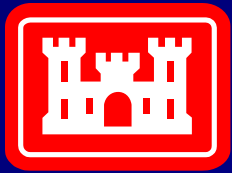




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# **Site Inspection**

- **Specific Items:**
  - **Health and Safety Plan/Contingency Plan**
  - **O&M Costs – utilities, labor, sampling costs, unusual expenses**
  - **Look for early indicators of potential remedy failure**

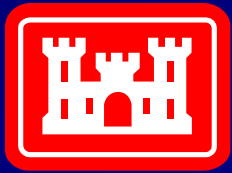


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# Cover Systems



- **Check For:**
  - Erosion
  - Settlement
  - Poor Vegetation
  - Slides/Displacements
  - Rodent Burrows
  - Internal Drainage Problems



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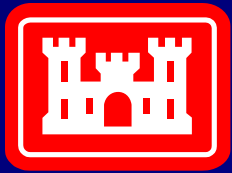
# Mechanical Systems



- Leachate Collection Systems
- Gas Flare System





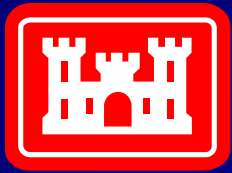


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# Monitoring Wells

- Check For:
  - General Condition
  - Locked Covers
  - Proper Labels
  - Unnecessary Wells



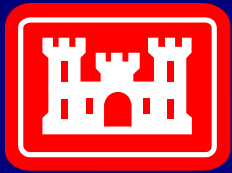


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# Extraction Wells

- **General Condition**
  - Labels?
  - Check performance over time
  - Evidence of biofouling or other flow restrictions?
  - Is there a maintenance schedule for pumps, well screen cleaning, etc?



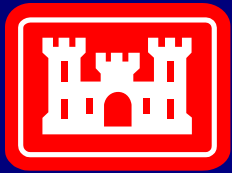


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# **Treatment Systems**

- **Look at the treatment train**
  - Metals removal
  - Air stripping
  - Oil/water separation
  - Carbon adsorption
- **Sampling ports marked and functional?**
- **O&M scheduled and followed?**
- **Discharge requirements met?**

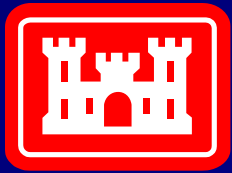




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# **ARARs Review**

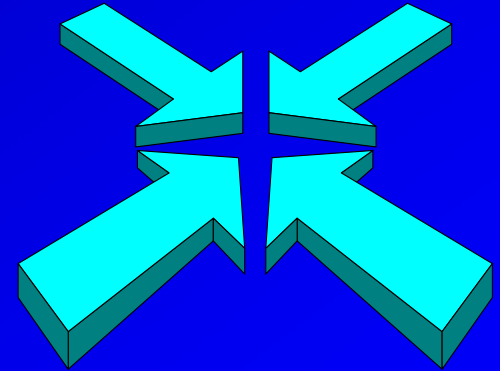
- **Identify ARARs in ROD and new standards that might be applicable, relevant, appropriate and that might affect protectiveness.**
  - **Is the new standard more stringent?**
  - **Can the remedy meet the new standard?**
  - **Is the remedy still protective?**

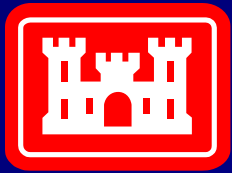


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# Risk Assessment

- Review contaminant data
  - Have data changed?
  - Has the risk potentially increased?
  - Is the new risk acceptable?

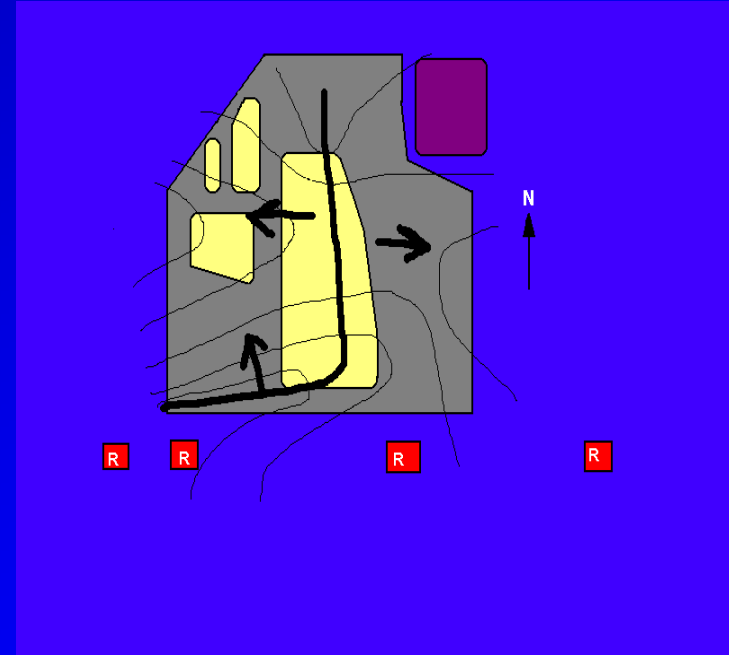




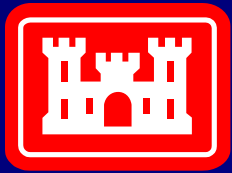
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# Data Analysis

- Often data is collected but not evaluated
- Closure Objectives:
  - Are they clear and realistic?
  - Is there a program in place to evaluate the performance on a continual basis?
- Is the system performing as designed?
- Is additional data required?



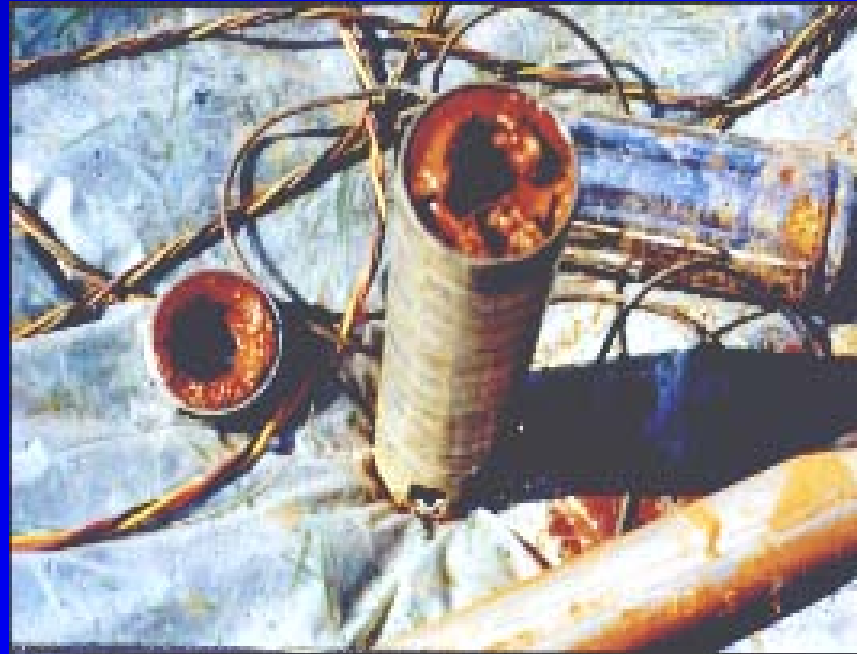




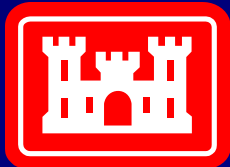
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# Deficiencies

- List all deficiencies and indicate whether or not the item affects protectiveness of the remedy.
- Requires some judgment on marginal issues.



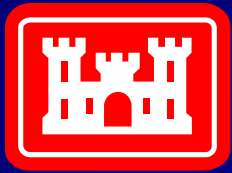




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# **Recommendations**

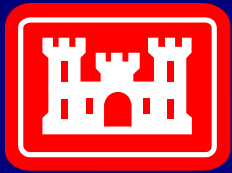
- **For each recommendation:**
  - **Responsible party**
  - **Oversight agency**
  - **Milestone date**
  - **State whether or not follow-up action affects protectiveness.**



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# Site Assessment

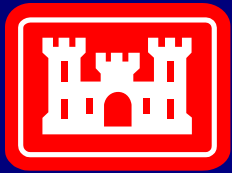
- Summarize your findings by answering the following ????
- *Question A:* Is the remedy functioning as intended by the decision documents?



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# Site Assessment

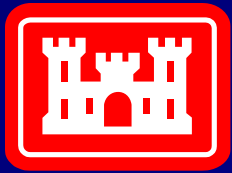
- *Question B:* Are the assumptions used at the time of the remedy still valid?
- *Question C:* Has any other information come to light that could call into question the protectiveness of the remedy?



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## Protective or Not?

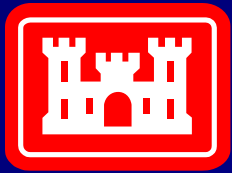
- Determined by addressing questions A, B, and C.
- Consider whether:
  - An immediate threat is present; or
  - The migration of contaminants is uncontrolled.
- If either of these 2 conditions apply, the remedy is *not* protective.



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# **Protectiveness Statements**

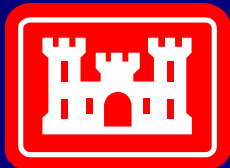
- **EPA has specific statements that should be used to state protectiveness. - See EPA guidance for details**



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# **Attachments**

- **List documents reviewed**
- **Include appropriate site maps, figures**
- **Include sampling data results**
- **Include interview summaries**
- **Include photo documentation**



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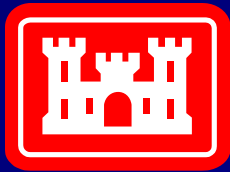
# **24 Checklists Developed**

- **Various Topics:**

- General Checklists
- Ground Water Extraction
- Soil Vapor Extraction
- Covers
- Air Stripping
- Thermal Oxidation
- Wells, Pumps, Blowers
- [www.environmental.usace.army.mil/library/guide/rsechk/rsechk.html](http://www.environmental.usace.army.mil/library/guide/rsechk/rsechk.html)



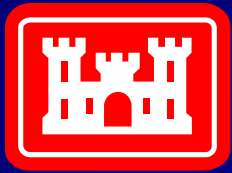




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# **HTRW-CX Support**

- **Site Visit/Report Writing Assistance**
- **Consultation on:**
  - **Geotechnical/Process Engineering**
  - **ARARs/Regulatory**
  - **Chemical Data Quality**
  - **Health & Safety**
- **Greg Mellema, P.E.**  
**(gregory.j.mellema@usace.army.mil)**
  - **(402)697-2658**



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# Summary

- **Corps provides excellent reviews**
- **Reviews can lead to follow-up work**
- **Provides improved working relationships between the Corps and EPA**